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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/994,291

11/26/2001

Yuji Ozeki

1357-01

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07/06/2004

IP DEPARTMENT OF PIPER RUDNICK LLP
ONE LIBERTY PLACE, SUITE 4900
1650 MARKET ST
PHILADELPHIA, PA 19103

EXAMINER

ILDEBRANDO, CHRISTINA A

ART UNIT

PAPER NUMBER

1725

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/994,291

Applicant(s)

OZEKI ET AL.

Examiner

Christina Ildebrando

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 4-6 and 9-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-3 and 7-8, in the reply filed on April 30, 2004 is acknowledged.
2. Claims 4-6 and 9-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on April 30, 2004.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

4. Claim 8 is objected to because of the following informalities: "ofzeolite" should be "of zeolite." Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-3 and 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claims 1-3 and 7-8 recite the limitation "A method of coating zeolite crystals" in the preamble. However, the body of the claim recites that the substrate is coated with any of the compounds (1)-(3). Therefore, it is not clear whether applicant intends the zeolite crystals to be coated with the compounds or whether applicant intends a method of coating zeolite crystals on a substrate. Similarly, in claim 7, the limitation "a step of coating zeolite crystals" and "the coated zeolite crystals." However, it is not clear that the zeolites would be coated – only the substrate appears to be coated. For the purposes of search and examination, the claims have been examined as though it is the substrate that has been coated with one of the compounds (1)-(3).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 3, 7/1, 7/3, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/33684 in view of EP 0 481 659.

WO 97/33684 discloses a method for preparing a molecular sieve membrane.

The method comprises: (a) depositing on a substrate a monolayer comprising molecular

sieve microcrystals which are capable of nucleating the growth of a molecular sieve film, (b) forming a molecular sieve synthesis solution, and (c) contacting (a) and (b) and hydrothermally growing molecular sieve to form a molecular sieve film on the substrate (page 6). The monolayer is formed by: (a) preparing a dispersion of discrete microcrystals of molecular sieve, (b) selecting or preparing a substrate, and (c) contacting the substrate with the dispersion comprising discrete molecular sieve microcrystals such that the microcrystals adhere to the substrate as a monolayer (page 6). Suitable molecular sieve materials include MFI type zeolite (page 16).

The difference between the reference and the claims is that the reference does not disclose coating the substrate with compounds (1), (2) or (3), although the reference does disclose that the substrate may be pretreated, such as with an acid prior to forming the monolayer (page 12).

EP 0 481 659 discloses a zeolite membrane. The reference teaches that a specific pretreatment of a the support material produced an enhanced growth of zeolite material (page 3, lines 25-30). Specifically, the reference teaches that the support material is immersed in an acid, such as hydrochloric acid, nitric acid, sulfuric acid, or phosphoric acid (page 3, lines 30-40). It is taught that the acid is used as a solution having a concentration in the range of 0.01-5 molar (page 3, lines 36-38).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of the WO reference to include a step of coating the substrate with an acid in light of the teaching by the EP reference that doing so results in enhanced growth of the zeolite coating. Because both references are

concerned with the formation of zeolite membranes on a substrate, one would have a reasonable expectation of success from the combination.

With respect to claim 3, the modified disclosure of the WO reference does not specifically disclose the relations α and β . However, given the molar concentrations and types of acids used in the EP reference and the alkalinity of the synthesis solutions taught by the WO reference, it is the position of the examiner that the modified disclosure would necessarily meet the claimed relations.

Allowable Subject Matter

10. Claim 2 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach or suggest a method of coating zeolite crystals on a substrate wherein the compound is selected from lactic acid, lactate ester, metal lactate salt, glycolic acid, glycolate ester, and metal glycolate salt.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Ildebrando whose telephone number is (571)

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272-1176. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Christina Ildebrando
Patent Examiner
Art Unit 1725
6/24/04

CAI
June 24, 2004